Remarks

This Preliminary Amendment is submitted prior to the receipt of any action in the case to correct sec. 112 problems in claims 1, 3, 5, 9, 13, 14, and 16. These amendments do not narrow the scope of the claims in any way.

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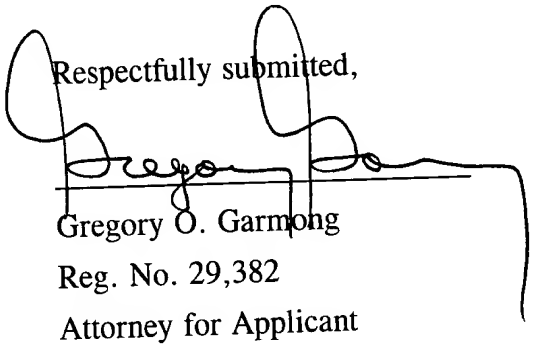
Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

underlined material is to be inserted, [bracketed] material is to be deleted, and --material set off by dashes-- is to be added.

Specification:

[0008] In accordance with one embodiment of the invention, a fuel-control manifold comprises a non-integral body comprising at least three pieces joined together and including an upper body segment, a middle body segment, and a lower body segment, a tank port in the upper body segment, an engine supply port in the upper body segment, a fueling port in the upper body segment, and a shutoff valve in the upper body segment. The shutoff valve, which is preferably, but not necessarily, a ball valve, includes a controllable shutoff valve closure having a shutoff-valve first side in fluid flow communication with the tank port and a shutoff-valve second side in fluid flow communication with the engine supply port and with the fueling port. The fuel-control manifold further includes a defueling port in the lower body segment, a vent port in the upper body segment, and a defuel/vent valve in the middle body segment. The defuel/vent valve comprises a controllable ball-valve defueling closure having a defueling-valve first side in fluid-flow communication with the shutoff-valve second side and a defueling-valve second side in fluid-flow communication with the defueling port. The defuel/vent valve further comprises a controllable ball-valve vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side. The defueling closure and the vent closure are mounted on a common defuel/vent valve stem. The defueling closure and the vent closure cannot be open at the same time. There may be an instrumentation port in the upper body segment, with the [measurement] instrumentation port in fluid-flow communication with the shutoff-valve

second side. Desirably, the defuel/vent valve has no elastomeric materials in the direct sealing/flow path.

[0009] In another embodiment, a fuel-control manifold comprises a body, a tank port in the body, an engine supply port in the body, a fueling port in the body, and a shutoff valve in the body. The shutoff valve, which is preferably a ball valve, includes a controllable shutoff valve closure having a first shutoff-valve side in fluid flow communication with the tank port and a second shutoff-valve side in fluid flow communication with the engine supply port and the fueling port. The fuel-control manifold further includes a defueling port in the body, a vent port in the body, and a defuel/vent valve in the body. The defuel/vent valve comprises a defuel/vent valve closure structure including a controllable ball-valve defueling closure having a first defueling-valve side in fluid-flow communication with the second shutoff-valve side and a second defueling-valve side in fluid-flow communication with the defueling port. The defuel-vent valve further comprises a controllable ball-valve vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side. The defueling closure and the vent closure being mounted on a common defuel/vent valve stem. The defueling closure and the vent closure cannot be open at the same time. There may be an instrumentation port in the body, with the [measurement] instrumentation port in fluid-flow communication with the shutoff-valve second side.

[0012] Desirably, the body has three separate segments that are joined together, with the shutoff valve in an upper body segment and the defuel-valve in a middle body segment. There may be an instrumentation port in the body, with the [measurement] instrumentation port in fluid-flow communication with the shutoff-valve second side. Preferably, the defuel/vent valve closure structure comprises a controllable ball-valve defueling closure having a first defueling-valve side in fluid-flow communication with the second shutoff-valve side and a second defueling-valve side in fluid-flow communication with the defueling port, and a controllable ball-valve vent closure

having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side. The defueling closure and the vent closure are preferably mounted on a common defuel/vent valve stem.

Claims:

1. (Amended) A fuel-control manifold, comprising:

a non-integral body comprising at least three pieces joined together and including an upper body segment, a middle body segment, and a lower body segment;

a tank port in the upper body segment;

an engine supply port in the upper body segment;

a fueling port in the upper body segment;

a shutoff valve in the upper body segment, the shutoff valve including a controllable shutoff valve closure having a shutoff-valve first side in fluid flow communication with the tank port and a shutoff-valve second side in fluid flow communication with the engine supply port and with the fueling port;

a defueling port in the lower body segment;

a vent port in the upper body segment; and

a defuel/vent valve in the middle body segment, the defuel/vent valve comprising

a controllable ball-valve defueling closure having a defueling-valve first side in fluid-flow communication with the shutoff-valve second side and a defueling-valve second side in fluid-flow communication with the defueling port, and

a controllable ball-valve vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side,

wherein the defueling closure and the vent closure [being] <u>are</u> mounted on a common defuel/vent valve stem, and

wherein the defueling closure and the vent closure cannot be open at the same time.

3. (Amended) The fuel-control manifold of claim 1, further including an instrumentation port in the upper body segment, the [measurement] instrumentation port being in fluid-flow communication with the shutoff-valve second side.

5. (Amended) A fuel-control manifold, comprising:

a body;

a tank port in the body;

an engine supply port in the body;

a fueling port in the body;

a shutoff valve in the body, the shutoff valve including a controllable shutoff valve closure having a [first] shutoff-valve first side in fluid flow communication with the tank port and a [second] shutoff-valve second side in fluid flow communication with the engine supply port and the fueling port;

a defueling port in the body;

a vent port in the body; and

a defuel/vent valve in the body, the defuel/vent valve comprising a defuel/vent valve closure structure including

a controllable ball-valve defueling closure having a [first] defueling-valve first side in fluid-flow communication with the second shutoff-valve side and a [second] defueling-valve second side in fluid-flow communication with the defueling port, and

a controllable ball-valve vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side, wherein the defueling closure and the vent closure are mounted on a common defuel/vent valve stem, and

wherein the defueling closure and the vent closure cannot be open at the same time.

9. (Amended) The fuel-control manifold of claim 5, further including an instrumentation port in the body, the [measurement] instrumentation port

being in fluid-flow communication with the shutoff-valve second side.

13. (Amended) The fuel-control manifold of claim 10, further including

an instrumentation port in the body, the [measurement] instrumentation port being in fluid-flow communication with the shutoff-valve second side.

14. (Amended) The fuel-control manifold of claim 10, wherein the defuel/vent valve closure structure comprises

a controllable ball-valve defueling closure having a [first] defueling-valve first side in fluid-flow communication with the second shutoff-valve side and a [second] defueling-valve second side in fluid-flow communication with the defueling port, and

a controllable ball-valve vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side, and wherein

the defueling closure and the vent closure are mounted on a common defuel/vent valve stem.

16. (Amended) A fuel-control manifold, comprising:

a body;

a tank port in the body;

an engine supply port in the body;

a fueling port in the body;

a shutoff valve in the body, the shutoff valve including a controllable shutoff valve closure having a shutoff-valve first side in fluid flow communication with the tank port and a shutoff-valve second side in fluid flow communication with the engine supply port and with the fueling port;

a defueling port in the body;

a vent port in the body; and

a defuel/vent valve structure in the body, the defuel/vent valve structure comprising

a defueling closure having a defueling-valve first side in fluid-flow communication with the shutoff-valve second side and a defueling-valve second side in fluid-flow communication with the defueling port, and

a vent closure having a vent-valve first side in fluid-flow communication with the vent port, and a vent-valve second side in fluid-flow communication with the defueling-valve second side,

wherein the defueling closure and the vent closure cannot be open at the same time, the shutoff valve and the defuel/vent valve being leak free over a temperature range of from -40°F to +180°F and over a pressure range of from 72 pounds per square inch to 6000 pounds per square inch.